



## Memorandum

*To: Diane Salkie, EPA Region 2  
Elizabeth Franklin, USACE*

*From: Troy Gallagher, CDM Smith*

*Date: December 13, 2019*

*Subject: Summary of Oversight of Chemical Water Column Monitoring  
October 29–30, 2019  
Lower Passaic River Restoration Project*

On behalf of the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE), Kansas City District, CDM Federal Programs Corporation (CDM Smith) traveled to the Lower Passaic River Study Area (LPRSA) on Tuesday, October 29 through Wednesday, October 30, 2019 and provided field technical oversight for the sixth round of surface water sampling associated with the Chemical Water Column Monitoring (CWCM) program.

Water sampling was conducted at 5 different locations along the Lower Passaic River at the following river mile (RM) locations: RM 8.4, RM 10.2, RM 12.0, RM 13.5, and RM 15.8. Only one sample was collected from RM 15.8 from a mid-depth of the river. For the remaining four locations, two samples were collected from each location, one from the top of the RM location approximately 3 feet below the surface, and the second from the bottom, approximately 2 feet above the river bottom; samples were collected during both flood and ebb tides from each river mile station. Samples were collected using a peristaltic pump to pump water directly into the sample containers. Water quality parameters were collected, and a vertical profile was performed both before and after samples were collected. Field activities were conducted by Ocean Surveys, Inc. (OSI) and AECOM on behalf of the Cooperating Parties Group (CPG). Anchor QEA provided field support on behalf of the CPG. Split samples were collected by CDM Smith on October 30, 2019.

The fixed point monitoring locations are presented in Figure 1 from the CPG's quality assurance project plan (QAPP). Oversight was conducted in accordance with CDM Smith's Final QAPP for CWCM, dated September 3, 2019. Photographs of field activities are presented in Attachment 1. A copy of the field logbook notes is provided in Attachment 2. A copy of the sample tracking log is provided in Attachment 3.

## **Summary of Tuesday, October 29, 2019 Field Activities**

### **Personnel in Attendance**

Troy Gallagher – CDM Smith  
Alexandra Allen – OSI  
James Roth – AECOM  
Clare Murphy-Hagan – AECOM  
Mike Tatarelli – AECOM  
Chris Pelrah – Anchor QEA

All personnel met at the 1 Madison Street boat dock in Rutherford, New Jersey. OSI and AECOM rode in OSI's boat, which was equipped with equipment for sampling. Anchor QEA and CDM Smith were aboard a separate oversight boat captained by Chris Pelrah.

All personnel mobilized to RM 13.5 to begin collecting the samples during the flood tide. Upon arrival to RM 13.5, YSI water quality parameters were recorded by AECOM personnel, and sample containers were labeled to prepare for collection. A vertical profile of water quality parameters was collected before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of RM 13.5. After all sample containers were filled, the YSI was raised and the tubing was replaced to begin collection from the top of the river. The water quality parameters were recorded, and then the sample collection began. A vertical profile of water quality parameters was collected, and water quality parameters were recorded after sample collection to complete sampling activities at this location. Both boats mobilized to RM 12.0.

Upon arrival to RM 12.0, debris was found tangled around the buoy. Branches and logs were freed from the buoy and sampling activities began at RM 12.0. AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for collection; OSI collected a vertical profile of water quality parameters before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 12.0 location, flood tide. After all sample containers were filled, the YSI was raised and tubing was replaced to begin collection from the top of the river. A final vertical profile of water quality parameters was collected, and the last water quality parameters were recorded. Both boats mobilized back to the Madison Street dock to wait for the ebb tide to begin.

Once the ebb tide had begun, both boats mobilized to RM 15.8 to begin preparations for sampling. OSI collected a vertical profile of water quality parameters and AECOM recorded the water quality parameters and labeled bottleware. Samples were collected from a mid-depth point of RM 15.8 during the ebb tide. A final vertical profile of water quality parameters was collected. The boats departed RM 15.8 to sample at RM 13.5

All personnel mobilized to RM 13.5 to begin collecting the samples during the ebb tide. AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for

collection; OSI collected a vertical profile of water quality parameters before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 13.5 location. After all sample containers were filled, the YSI was raised and tubing was replaced to begin collection from the top of the river. A final vertical profile of water quality parameters was collected, and the last water quality parameters were recorded.

All personnel mobilized to RM 12.0 for sample collection during the ebb tide. OSI collected a vertical profile of water quality parameters and AECOM recorded the water quality parameters and labeled bottleware. Samples were collected from the bottom of RM 12.0 during the ebb tide. The YSI was raised to the surface, and the tubing was replaced. Water quality parameters were recorded, and the samples were collected from the surface of RM 12.0. A final vertical profile of water quality parameters was collected and concluded the sampling activities for this day. Both boats mobilize back to the dock to unload coolers and prepare samples for shipment, and to secure the boats for the evening.

## **Summary of Wednesday, October 30, 2019 Field Activities**

### **Personnel in Attendance**

Troy Gallagher – CDM Smith  
Alexandra Allen – OSI  
James Roth – OSI  
Clare Murphy-Hagan – AECOM  
Mike Tatarelli – AECOM  
Chris Pelrah – Anchor QEA

All personnel met at the 1 Madison Street boat dock in Rutherford, New Jersey. OSI and AECOM rode in OSI's boat, which was equipped with equipment for sampling. Anchor QEA and CDM Smith rode in a support boat for observation and oversight.

All personnel mobilized to RM 10.2 to begin collecting the samples during the flood tide. AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for collection. A vertical profile of water quality parameters was collected before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 10.2 location. After all sample containers were filled, the YSI was raised and tubing was replaced to prepare for collection from the top of the river. The water quality parameters were recorded, and then the sample collection began. A final vertical profile of water quality parameters was collected to finish up sampling activities at RM 10.2.

All personnel mobilized to RM 8.4 to begin collecting the samples during the flood tide. Upon arrive to RM 8.4, the yellow buoy was not on location. The yellow buoy with the attached YSI could be seen approximately a quarter of a mile downstream. The OSI vessel stayed at RM 8.4 to anchor and prepare for sampling, while the Anchor QEA boat, with CDM Smith on board, was taken downstream to inspect

the adrift buoy. Anchor QEA could not properly inspect the buoy without the winch onboard the OSI vessel. Both boats meet at RM 8.4 and prepared for sampling. It was assumed that the high flow rate of the river lifted the buoy from its anchor and carried it downstream.

AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for collection. A vertical profile of water quality parameters was collected before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 8.4 location. After all sample containers were filled, the YSI was raised and tubing was replaced to begin collection from the top of the river. The water quality parameters were recorded, and then the sample collection began. A final vertical profile of water quality parameters was collected to finish up sampling activities at RM 8.4. The OSI boat departed downstream to retrieve the yellow buoy and secure it back on location at RM 8.4. The Anchor QEA boat, with CDM Smith and AECOM personnel, transported all of the coolers with samples back to the Madison Street dock. Personnel waited onshore for the ebb tide to begin.

Once the ebb tide window opened, all personnel mobilized to RM 10.2 to begin collecting the samples during the ebb tide. AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for collection. A vertical profile of water quality parameters was collected before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 10.2 location. After all sample containers were filled, the YSI was raised and tubing was replaced to begin collection from the top of the river. The water quality parameters were recorded, and then the sample collection began. A final vertical profile of water quality parameters was collected to finish up sampling activities at RM 8.4. Both boats mobilized to RM 8.4.

All personnel mobilized to RM 8.4 to begin collecting the samples during the ebb tide. AECOM recorded water quality parameters from the YSI, and sample containers were labeled to prepare for collection. A vertical profile of water quality parameters was collected before sample collection as well. The peristaltic pump was turned on, and sample collection began from the bottom of the RM 8.4 location. CDM Smith collected a split sample and duplicate from the bottom of RM 8.4 with the sample identification 19S-CE04-T084-BS-CDM and 19S-CE04-T084-BS-CDM-100, respectively. After all sample containers were filled, the YSI was raised and tubing was replaced to prepare for collection from the top of the river. The water quality parameters were recorded, and then the sample collection began. A final vertical profile of water quality parameters was completed to finish up sampling activities at RM 8.4. This completed all sample collection for the sixth round of the CWCM. Both boats mobilized back to the dock.

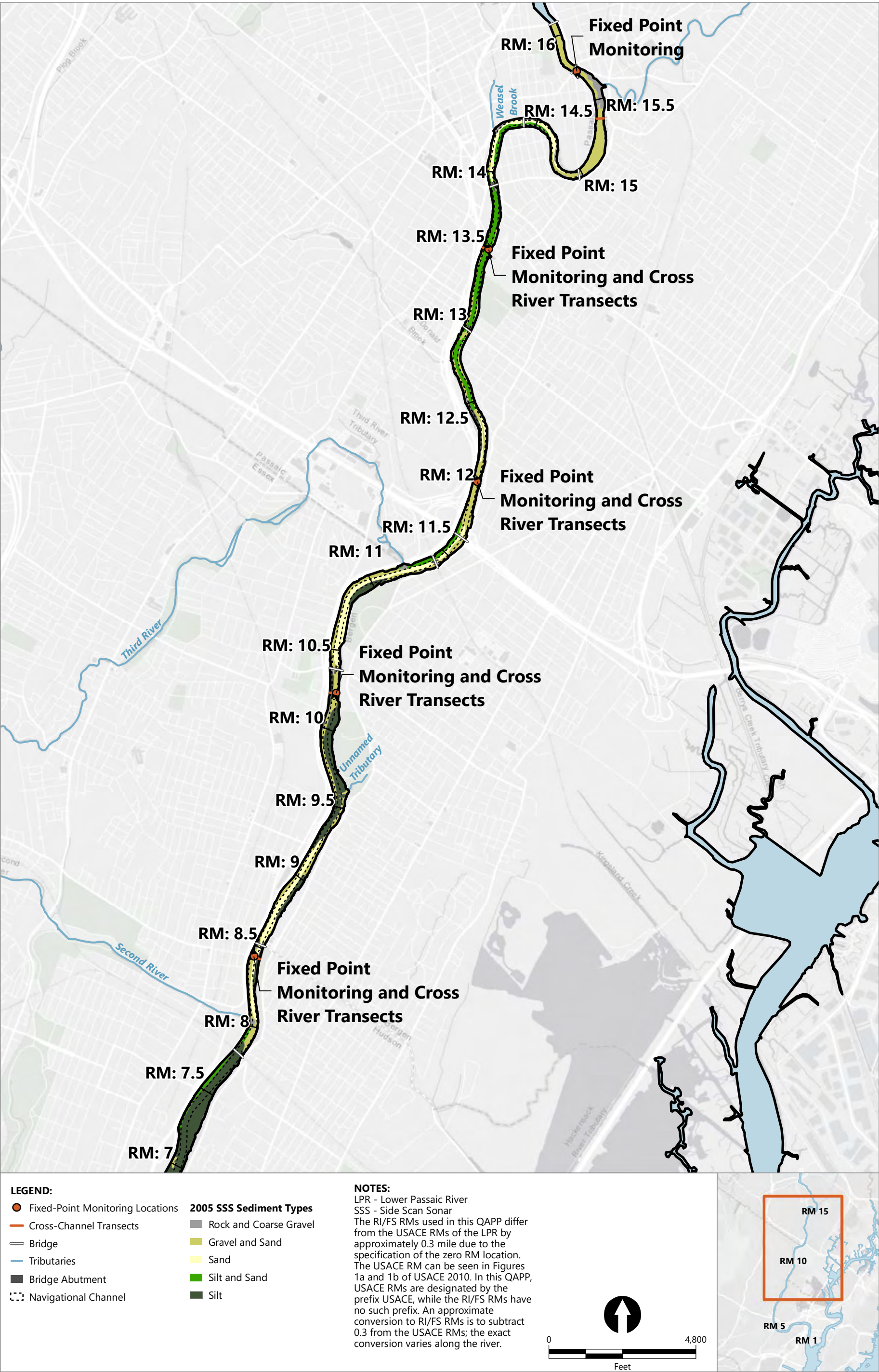
After arriving back on shore, Troy Gallagher packed all of the split sample containers in coolers and prepared them for shipment through FedEx. Surface water samples were sent to SGS AXYS laboratory to be analyzed for pesticides, PCBs, PAHs, and dioxin/furans; Katahdin Analytical Services was sent surface

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water samples to be analyzed for TOC, POC, TSS, total and dissolved metals, and total and dissolved mercury. Four coolers were dropped off at FedEx for overnight delivery.

## Figure 1





# Attachment 1

## Photographs of Field Activities





Photograph 1: OSI preparing tubing to attach to YSI.

10/29/2019



Photograph 2: AECOM collecting samples from RM 13.5.

10/29/2019



Photograph 3: Debris stuck on buoy at RM 12.0.

10/29/2019





Photograph 4: AECOM collecting low level mercury samples using clean hands method.

10/29/2019



Photograph 5: AECOM collecting samples from RM 10.2.

10/30/2019



Photograph 6: Location of RM 8.4 buoy upon arrival, about a quarter mile downstream.

10/30/2019





Photograph 7: Anchor QEA checking RM 8.4 buoy to ensure YSI is still attached.

10/30/2019





Photograph 8: OSI getting ready to perform vertical profile with YSI in hand.

10/30/2019



Photograph 9: AECOM collecting samples at RM 8.4.

10/30/2019

## Attachment 2

### Field Logbook



Location Rutherford, NJ Date 10/22/19Project / Client LPR / USACEDiamond Alkali 004 / CWCM

- 1330 Samples collected from top of RM 10.2, flood tide.
- 1350 WQ parameters and final vertical profile taken. Both boats head back to dock to unload.
- 1420 Back @ dock.
- 1515 TG offsite to print labels + pack coolers for shipment.
- 1740 TG done packing coolers. Heads to FedEx to drop off samples.
- 1815 Coolers dropped off. TG done for day. Will send lab emails about shipment tonight

*[Signature]*  
10/22/19

Location Rutherford, NJ Date 10/29/19Project / Client LPR / USACEDiamond Alkali 004 / CWCM

- 515 TG arrive at Madison St dock  
Weather: 57°F, overcast, chance of rain  
PPE: Level D  
Purpose: Oversight of 6<sup>th</sup> CWCM event
- 530 AECOM and OSI personnel arrive onsite and start loading boat.  
Crew:  
Alexandra Allen } OSI  
James Roth }  
Mike Tatarelli } AECOM  
Clare Murphy-Hagen }  
Troy Gallagher } CDM Smith  
Chris Pelrah - Anchor QEA
- 605 H+S meeting on dock. TG and CP on oversight boat. Both boats depart to RM 13.5
- 615 Arrive at RM 13.5. Preparing YSI and sample containers
- 630 Vertical profile and WQ parameters collected. Samples collected from bottom @ RM 13.5, flood tide

*[Signature]* 10-29-19 *Rite in the Rain*



Location Rutherford, NJ Date 10/29/19  
 Project / Client LPR / USACE  
Diamond Alkali OU4 / CWCM

- 635 Raise YSI and replace tubing. WQ parameters collected.
- 645 Begin collecting samples from the top of RM 13.5, flood.
- 655 Take final WQ parameters + vertical profile. Swap coolers from each boat and mobilize to RM 12.0.
- 715 Arrive at RM 12.0. Set up boats on buoy. Upon arrival, big logs and debris hooked on buoy, all debris removed before beginning activities. Vertical profile performed and WQ parameters taken.
- 725 Samples collected from the bottom of RM 12.0, flood.
- 735 Raise YSI and replace tubing. WQ parameters recorded. YSI tied off on surface.
- 745 Samples collected from top of RM 12.0, flood tide.
- 755 Take final WQ parameters + vertical profile. Both boats head back to dock.

Location Rutherford NJ Date 10/29/19  
 Project / Client LPR / USACE  
Diamond Alkali OU4 / CWCM

- 1120 Crew back on dock for ebb tide sampling. Both boats head up to RM 15.8.
- 1135 Arrive @ RM 15.8. Wait for ebb tide window to open.
- 1205 Tubing set up and bottles labeled. Vertical profile taken and WQ parameters recorded.
- 1215 Samples collected from mid-depth point at RM 15.8, ebb.
- 1223 WQ parameters and vertical profile collected. Boats mobilize to RM 13.5.
- 1245 Arrive @ RM 13.5. Attach tubing to YSI and label bottle ware. Vertical profile collected, WQ parameters taken.
- 1255 Samples collected from bottom of RM 13.5, ebb tide.
- 1305 Raise YSI and replace tubing. WQ parameters recorded.
- 1315 Samples collected from top of RM 13.5, ebb.

10-29-19 *Return to the River*



- 1330 Final vertical profile and WQ parameters. Both boats move to RM 12.0
- 1345 Arrive @ RM 12.0. Setup tubing and label bottles. Vertical profile and WQ parameters collected. Samples collected from bottom of RM 12.0, ebb tide
- 1405 YSI raised and tubing changed. WQ parameters taken.
- 1415 Samples collected from top of RM 12.0, ebb. Final vertical profile and WQ parameters taken. Both boats head back to dock.
- 1515 TG offsite

*[Signature]*  
10-29-19

- 545 TG onsite
- Weather: 60°F, light rain
- PPE: Level D
- Purpose: Oversight of CWCM event and collection of split sample
- 600 Loadup boats, HHS meeting. Some crew as yesterday. Depart to RM 10.2
- 645 Arrive at RM 10.2. Setup YSI and bottles. Perform vertical profile and take WQ parameters
- 655 Samples collected from bottom of RM 10.2, flood tide
- 700 Raise YSI and change tubing. WQ parameters recorded. YSI placed at surface.
- 705 Samples collected from top of RM 10.2, flood tide
- 730 WQ parameters and final vertical profile collected. Boats swap coolers and head to RM 8.4.
- 745 Arrive at 8.4. Upon arrival, yellow buoy is not on location. Buoy can be seen about 1/2 mile

*[Signature]* 10/30/19 *Rite in the Rain*



downstream. Anchor QEA boat heads down to inspect. Buoy is still tethered to bottom, not free floating. Inspect buoy to see if YSI is still in place, but cannot overturn buoy without wench. Head back to RM 8.4 to meet with OSI boat who is trying to anchor at location so they can sample as they cannot tie off to the buoy. Likely that with all the rain and high tides, buoy got lifted + moved.

8<sup>10</sup> Anchor QEA boat ties onto shore instead of onto OSI boat due to OSI boat being weakly anchored. Will provide oversight from here while they sample Vertical profile and WQ parameters taken

8<sup>15</sup> Samples collected from the bottom of RM 8.4, flood tide.

8<sup>30</sup> Raise YSI and change tubing. WQ parameters recorded.

*[Signature]* 10/30/19

8<sup>40</sup> Samples collected from top of RM 8.4, flood tide. Duplicate sample also collected at this location

9<sup>00</sup> Final vertical profile and WQ parameters collected. YSI removed from water. Both boats mobilize together to put all coolers on Anchor's boat. Anchor's boat + CMH will take coolers back to dock. OSI boat will check on RM 8.4 buoy to ensure YSI is still in tact, and to see if there is anything they can do. Depart back to dock.

10<sup>00</sup> Back @ dock. Will wait until ebb tide window. OSI boat successful with moving RM 8.4 buoy back to the correct location.

11<sup>45</sup> TG back on site. Preparing coolers and sample bottles for split sample.

12<sup>15</sup> Both crews back on dock, prepare to mobilize to RM 10.2 to begin ebb tide sampling

12<sup>20</sup> Depart dock.

*[Signature]* 10/30/19 *Rite in the Rain*



- 1230 Arrive @ RM 10.2. OSI + AECOM setting up tubing and preparing to collect samples. Vertical profile and WQ parameters collected.
- 1250 and WQ parameters collected.
- 1300 Samples collected from the bottom of RM 10.2, ebb tide.
- 1310 Raise YSI and change tubing. WQ parameters recorded.
- 1315 Samples collected from the top of RM 10.2, ebb tide.
- 1340 WQ parameters and final vertical profile performed. YSI brought onto boat. Coolers swapped between both boats and then head to RM 8.4.
- 1355 Arrive at RM 8.4. TG boards OSI boat to collect split sample from bottom of 8.4. Vertical profile and WQ parameters collected.
- 1410 Samples collected from bottom of RM 8.4, ebb tide. CDM Smith collects split sample + duplicate called

19S-CE04-T084-BS-CDM and  
19S-CE04-T084-BS-CDM-100

respectively.

- 1445 YSI raised to surface and tubing replaced. WQ parameters recorded.
- 1450 Samples collected from top of RM 8.4, ebb tide.
- 1505 Final vertical profile and WQ parameters taken. Both boats depart and head to dock.
- 1540 Back @ dock. TG to begin packing coolers. Will go to buy ice and label bottles.
- 1730 TG done packing coolers. Head to FedEx.
- 1815 Drop off coolers @ FedEx. Will email labs tonight about shipment.

10/30/19

*[Signature]*

## Attachment 3

### Sample Tracking Log

Cwcm #6

## SAMPLE TRACKING LOG

Trace VOC LAB: \_\_\_\_\_

INORGANIC CLP LAB: \_\_\_\_\_

CLP CASE NO: \_\_\_\_\_

ORGANIC CLP LAB: \_\_\_\_\_

SUBCONTRACT LAB: Katahdin

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	MATRIX	DEPTH (feet)	Trace VOC CLP NO.	ORGANIC CLP NO.	INORGANIC CLP NO.	SUBCONTRACT ANALYSIS	QA/QC
195-CE04-T084 -BS-CDM	10/30/19	1410	SW	B	-	-	-	SSC, POC/DOC, TAL metals, Total Hg	MS/MSD
195-CE04-T084 -BS-CDM-100	10/30/19	1410	SW	B	-	-	-	↓	Duplicate

ANALYSIS SUMMARY: SSC- suspended solid concentration, POC/DOC- particulate organic carbon/dissolved organic carbon, TAL Metals- Total and dissolved metals, Total Hg - Total + dissolved mercury

CWCM #6

## SAMPLE TRACKING LOG

Trace VOC LAB: \_\_\_\_\_ INORGANIC CLP LAB: \_\_\_\_\_

CLP CASE NO: \_\_\_\_\_ ORGANIC CLP LAB: \_\_\_\_\_ SUBCONTRACT LAB: SGS AXYS

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	MATRIX	DEPTH (feet)	Trace VOC CLP NO.	ORGANIC CLP NO.	INORGANIC CLP NO.	SUBCONTRACT ANALYSIS	QA/QC
195-CE04-T084 -BS-CDM	10/30/19	1410	SW	B	-	-	-	D/F, PCBs, Pest, PAHs	MS/MSD
195-CE04-T084 -BS-CDM-100	10/30/19	1410	SW	B	-	-	-	↓	Duplicate

ANALYSIS SUMMARY: D/F - Dioxin/Furans, PCBs - polychlorinated biphenyls, PEST - organochlorine pesticides  
PAHs - polycyclic aromatic hydrocarbons